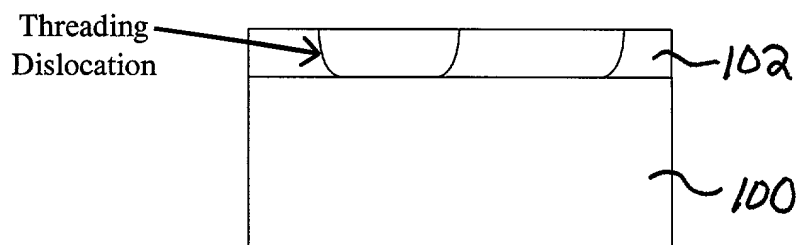


Figure 1A



1. Deposit lattice mismatched layer at low T

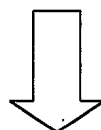
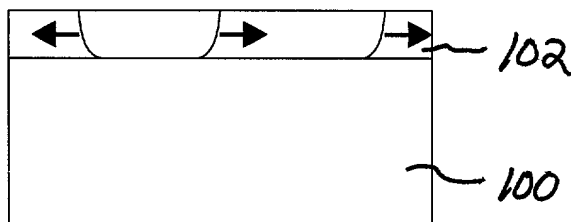
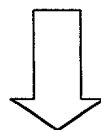


Figure 1B

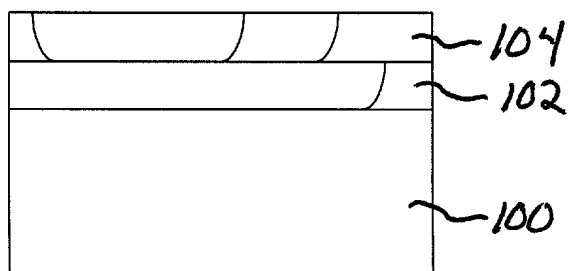


2. Anneal at high T to increase dislocation flow and reduce dislocation density

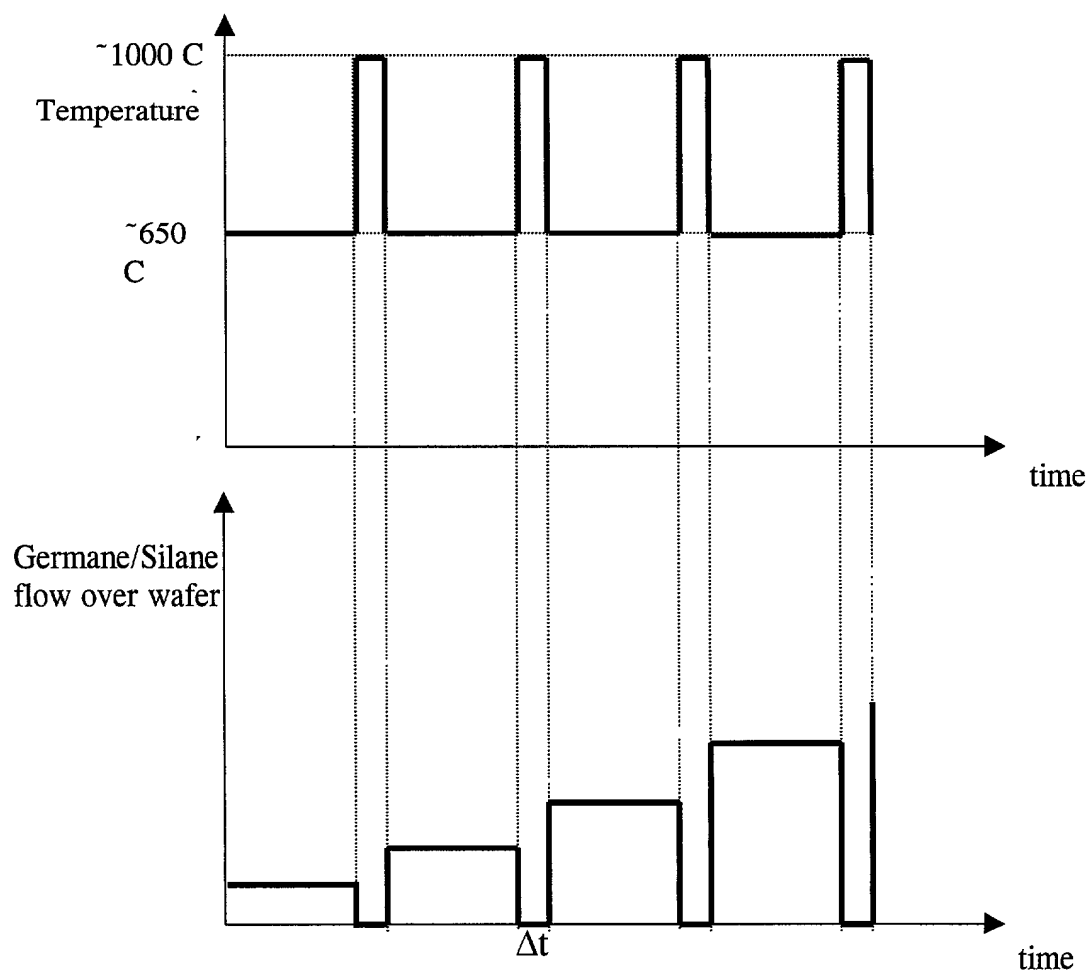


4. Repeat anneal and deposition until desired structure is achieved

Figure 1C

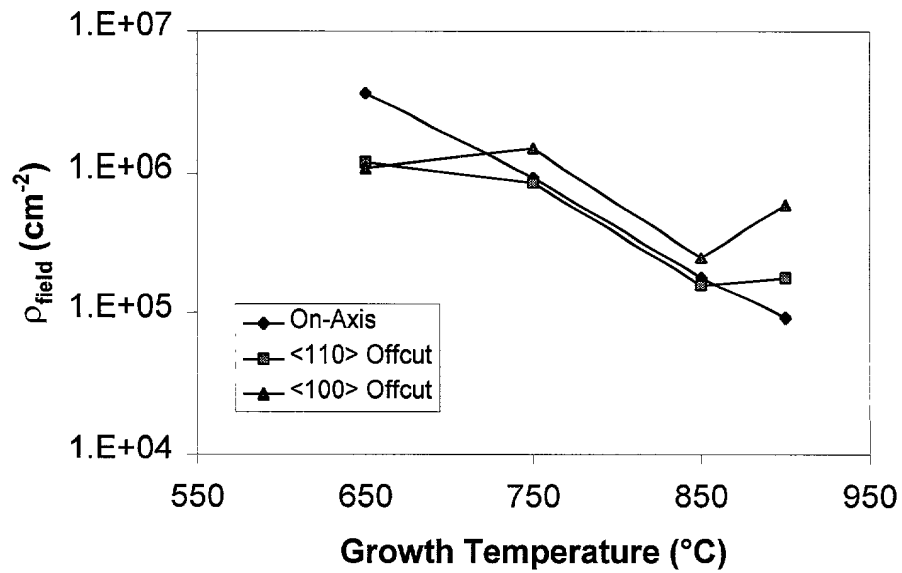


3. Deposit subsequent layer with increased lattice mismatch at low T



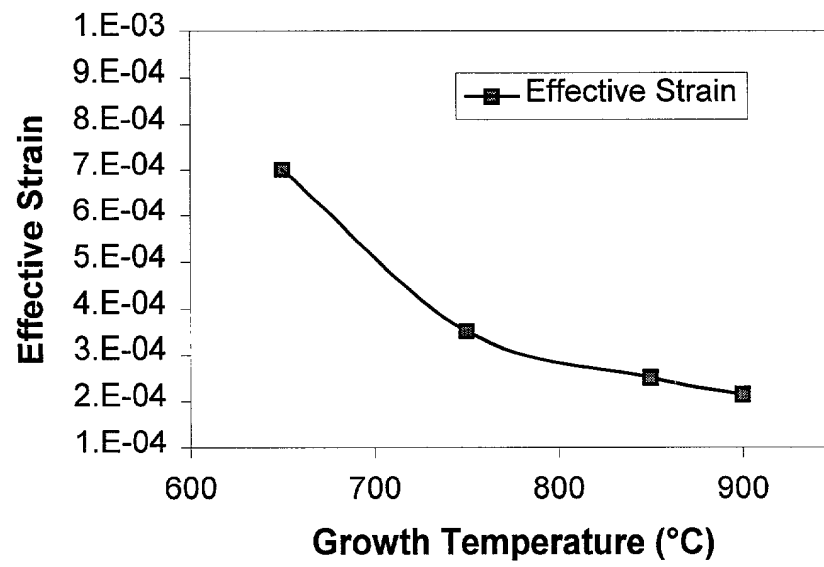
**Figure 2**

**Glide Kinetics Series (30% Ge): Field TDD vs.  
Growth T**



**Figure 3**

**Change in Effective Strain to Fit Data**



**Figure 4**

| Sample   | Total Threading<br>Dislocation Density<br>(#/cm <sup>2</sup> ) | Field Threading<br>Dislocation Density<br>(#/cm <sup>2</sup> ) |
|--|--|--|
| 20% SiGe on Si with<br>graded buffer as grown                          | $1.36 \times 10^6$   | $1.31 \times 10^6$   |
| 20% SiGe on Si with<br>graded buffer after a 5<br>min anneal at 1050°C | $7.25 \times 10^5$   | $5.48 \times 10^5$   |

**Figure 5**